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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/037,816	01/03/2002	Samuel Lee Miller	50060-00048	6558

7590 08/04/2004

Marsh Fischmann & Breyfogle LLP
Suite 411
3151 S. Vaughn Way
Aurora, CO 80014

EXAMINER	
GEISEL, KARA E	
ART UNIT	**PAPER NUMBER**
2877	

DATE MAILED: 08/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/037,816	MILLER ET AL.	
	Examiner	Art Unit	
	Kara E Geisel	2877	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 April 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-64* is/are pending in the application.

4a) Of the above claim(s) *6,15,18,40-45,47-50 and 61* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5,7-11,14,16,17,20,22-32,46,53-57,59,60 and 62* is/are rejected.

7)☒ Claim(s) *12,13,19,21,33-39,51,52,58,63 and 64* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *03 January 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *0103, 0802*.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

Applicant's election of species I, claims 1-5, 7-14, 16-17, 19-39, 46, 51-60, and 62-64 in the paper filed on April 29th, 2004 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Information Disclosure Statement

The information disclosure statement filed August 2nd, 2002 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each U.S. and foreign patent; each publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the foreign patent WO 99/66354 has not been considered.

The information disclosure statement filed on January 21st, 2003 has been fully considered by the examiner.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

Claim 26 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In regards to claim 26, line 2, it is not clear what the microstructure array is formed on. It appears that a word is missing after "said".

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-5, 7-11, 14, 16-17, 20, 23-24, 26-31, 46, 53-57, 59-60, and 62 are rejected under 35 U.S.C. 102(e) as being anticipated by Athale (USPN 6,501,869).

In regards to claims 1 and 46, Athale discloses a system and method for redirecting optical signals (fig. 19), the system comprising at least one substrate (1990) having a first surface (the bottom of 1916, 1926, or 1936), at least one reflective microstructure array (1911-1915, 1921-1925, and 1931-1935) formed on the substrate (column 8, lines 5-19), the reflective microstructure array including at least one reflective microstructure (1911-1915, 1921-1925, and 1931-1935), each reflective microstructure of the reflective microstructure array including an optically reflective surface and being positionable with respect to the first surface of the substrate in at least one orientation wherein the reflective surface thereof is positioned to redirect an optical signal (figs. 12B) from at least one originating location to at least one target location, each orientation of each reflective microstructure being defined by an associated unit normal vector orthogonal to the reflective surface thereof (in this case, two positions, open and closed have a unit normal vector at 0 and 45 degrees; column 12, lines 65-67), a set of unit normal vectors

comprising substantially all of the unit normal vectors associated with each orientation of each reflective microstructure, and an average normal vector associated with the reflective microstructure array, the average normal vector comprising the average of the unit normal vectors in the set of unit normal vectors, wherein an average normal vector associated with the reflective microstructure array forms an acute angle with a vector normal to the first surface of the substrate, the angle being greater than five degrees (since there are only two positions per microstructure, 0 and 45 degrees with respect to a vector normal to the first surface, the average normal vector of all the microstructures in the array will be 22.5 degrees).

In regards to claims 2 and 55, the angle is greater than ten degrees and less than eighty (22.5 degrees).

In regards to claim 3, each reflective microstructure is positionable to selectively switch an optical signal on and off at a target location (figs. 12A-12B).

In regards to claim 4, each originating location and each target location comprises an optical port, the reflective microstructures of the reflective microstructure array being positionable in orientations required to redirect optical signals between selected optical ports (column 5, lines 47-65).

In regards to claim 5, a portion of the optical ports are arranged in at least one array of optical ports, the optical ports within the array of optical ports being arranged in a first plane (fig. 15B, optical ports deliver beams 1501-1505, which are arranged in a first plane).

In regards to claim 7, the system includes at least two reflective microstructure arrays (fig. 19, 1990 and 1992), wherein the reflective microstructures of the arrays are positionable to redirect optical signals between selected groups of optical ports associated with the respective reflective arrays.

In regards to claims 8-10, it is up to the user to decide which system to place this switch.

In regards to claims 11 and 53-54, the originating and target locations comprise an optical port (column 1, lines 14-26).

In regards to claim 14, the system includes at least two substrates (fig. 19, 1990 and 1992), and at least two reflective microstructure arrays (1911-1915, 1941-1945) each reflective microstructure array being formed on a separate one of the substrates, at least two of the substrates being positioned such that the vectors normal to the first surfaces thereof are parallel (ray 1918 can represent the vector normal to both substrates).

In regards to claim 16, the reflective microstructures of the at least one reflective microstructure array are arranged in a rectangular pattern of rows and columns (fig. 15A-15B).

In regards to claim 17, the vector normal to the first surface of the substrate is parallel with the optical signal beam reflected from the reflective microstructure (fig. 19, 1918).

In regards to claim 20, each reflective microstructure of the array is positionable with at least one degree of freedom (figs. 12A-12B).

In regards to claim 23, the optically reflective surface of each reflective microstructure of the reflective array comprises and optically reflective coating (column 8, lines 13-47).

In regards to claim 24, the array includes at least one microactuator formed on the substrate for each of the microstructures, each microstructure being operatively coupled to the actuator (column 8, lines 32-38 and column 12, lines 45-47).

In regards to claim 26, the Examiner notes that the claim limitation "formed...using at least one of sacrificial surface, micromachining, bulk micromachining, and LIGA" is drawn to a process of manufacturing, which is incidental to the claimed apparatus. It is well established that a claimed apparatus cannot be distinguished over the prior art by a process limitation. Consequently, absent a showing of an unobvious difference between the claimed product and the prior art, the subject product-by-process claim limitation is not afforded patentable weight (see MPEP 2113).

In regards to claim 27, Athale discloses a system for redirecting optical signals (fig. 19), the system comprising at least one substrate (1990) having a first surface (the bottom of 1916, 1926, or 1936), at least one reflective microstructure array (1911-1915, 1921-1925, and 1931-1935) formed on the substrate (column 8, lines 5-19), the reflective microstructure array including at least one reflective microstructure (1911-1915, 1921-1925, and 1931-1935), each reflective microstructure of the reflective microstructure array including an optically reflective surface and being positionable with respect to the first surface of the substrate in at least one orientation wherein the reflective surface thereof is positioned to redirect an optical signal (figs. 12B) from at least one originating location to at least one target location, each orientation of each reflective microstructure being defined by an associated unit normal vector orthogonal to the reflective surface thereof (in this case, two positions, open and closed have a unit normal vector at 0 and 45 degrees; column 12, lines 65-67), a set of unit normal vectors comprising substantially all of the unit normal vectors associated with each orientation of each reflective microstructure, and an average normal vector associated with the reflective microstructure array, the average normal vector comprising the average of the unit normal vectors in the set of unit normal vectors, wherein an average normal vector associated with the reflective microstructure array forms a first angle with a vector normal to the first surface of the substrate, the angle being greater than five degrees (since there are only two positions per microstructure, 0 and 45 degrees with respect to a vector normal to the first surface, the average normal vector of all the microstructures in the array will be 22.5 degrees) wherein, a set of second angles measured between projections of each unit normal vector in the set of unit normal vectors onto the first surface of the substrate and a reference axis defined on the first surface of the substrate span a range that is greater than two degrees (projections would still be 0 degrees and 45 degrees in respect to a reference axis defined on the first surface of the substrate, therefore the range would be 45 degrees).

In regards to claim 28, the first angle is greater than 10 degrees (22.5 degrees).

In regards to claim 29, the range is greater than 10 degrees (45 degrees).

In regards to claim 30, Athale discloses a system for redirecting optical signals (fig. 19), the system comprising at least one substrate (1990) having a first surface (the bottom of 1916, 1926, or 1936), at least one reflective microstructure array (1911-1915, 1921-1925, and 1931-1935) formed on the substrate (column 8, lines 5-19), the reflective microstructure array including at least one reflective microstructure (1911-1915, 1921-1925, and 1931-1935), each reflective microstructure of the reflective microstructure array including an optically reflective surface and being positionable with respect to the first surface of the substrate in at least one orientation wherein the reflective surface thereof is positioned to redirect an optical signal (figs. 12B) from at least one originating location to at least one target location, each orientation of each reflective microstructure being defined by an associated unit normal vector orthogonal to the reflective surface thereof (in this case, two positions, open and closed have a unit normal vector at 0 and 45 degrees; column 12, lines 65-67), a set of unit normal vectors comprising substantially all of the unit normal vectors associated with each orientation of each reflective microstructure, wherein, a set of second angles measured between projections of each unit normal vector in the set of unit normal vectors onto the first surface of the substrate and a reference axis defined on the first surface of the substrate span a range that is greater than two degrees and less than one hundred eighty degrees (projections would be 0 degrees and 45 degrees in respect to a reference axis defined on the first surface of the substrate, therefore the range would be 45 degrees).

In regards to claim 31, the range is greater than 10 degrees and less than 120 degrees (45 degrees).

In regards to claim 56, Athale discloses an optical system (fig. 19), comprising a plurality of first optical ports (represented by 1910, 1920, 1930) operative for at least one of transmitting and receiving optical beams, a plurality of second optical ports (represented by 1940, 1950, 1960, 1970, 1980) operative for at least one of transmitting and receiving optical beams, and an array of

first reflective devices formed on a substrate (1911-1915, 1921-1925, 1931-1935), each one of the first reflective devices being associated with one of the first optical ports and being movable across a range of angular orientations (from 0 degrees to 45 degrees), each such orientation being defined by an axis normal to a reflective surface of one of the first reflective devices, to optically connect said associated one of the first ports with substantially any one of the second ports, the range of angular orientations for any one of the first reflective devices being defined by a center axis having a directional orientation associated with a unit vector such that a first device set including substantially all of the first reflective devices of the array of first reflective devices defines a first center axis set including all of the center axes of the first reflective devices of the first device set and a corresponding first unit vector set including the unit vectors associated with the center axes of said first reflective devices, the first optical ports, second optical ports and array of first reflective devices being configured such that an average orientation of the first center axis set, the average orientation of said first center axis set being the orientation of an average unit vector obtained by taking a vector sum of the unit vectors of said first unit vector set and dividing said sum by a number of said unit vectors of said first unit vector set ((0*5+45*5)/10=22.5 degrees), is angularly offset by at least five degrees and less than ninety degrees relative to an axis normal to said substrate on which said array of first reflective devices is formed.

In regards to claim 57, the average orientation of the first center axis set is angularly offset by at least 10 degrees and less than eighty degrees relative to the axis normal to the substrate on which the array of first reflective devices is formed (22.5 degrees).

In regards to claim 59,the system further comprises an array of second reflective devices formed on a substrate (1941-1943, 1951-1953, 1961-1963, 1971-1973, 1981-1983), each one of the second reflective devices being associated with one of the second optical ports (represented by 1940, 1950, 1960, 1970, 1980) and being movable across a range of angular orientations (from

0 degrees to 45 degrees), each such orientation being defined by an axis normal to a reflective surface of one of the second reflective devices, to optically connect said associated one of the first ports with substantially any one of the second ports, the range of angular orientations for any one of the second reflective devices being defined by a center axis having a directional orientation associated with a unit vector such that a second device set including substantially all of the second reflective devices of the array of second reflective devices defines a second center axis set including all of the center axes of the second reflective devices of the second device set and a corresponding second unit vector set including the unit vectors associated with the center axes of said second reflective devices, the first optical ports, second optical ports and array of first and second reflective devices being configured such that an average orientation of the second center axis set, the average orientation of said second center axis set being the orientation of an average unit vector obtained by taking a vector sum of the unit vectors of said second unit vector set and dividing said sum by a number of said unit vectors of said second unit vector set ((0*5+45*5)/10=22.5 degrees), is angularly offset by at least five degrees and less than ninety degrees relative to an axis normal to said substrate on which said array of second reflective devices is formed.

In regards to claim 60, the average orientation of the second center axis set is angularly offset by at least 10 degrees and less than eighty degrees relative to the axis normal to the substrate on which the array of second reflective devices is formed (22.5 degrees).

In regards to claim 62, the substrate on which the first and second array is formed comprises two separate substrates (1990, 1992).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 2, 25, and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Athale (USPN 6,501,869).

In regards to claim 22, Athale discloses a system for redirecting optical signals. It is not disclosed how each reflective microstructure is positioned, however open loop control is well known in the art, and would be obvious to one of ordinary skill in the art to use in order to position the reflective microstructure.

In regards to claim 25, it is not disclosed what type of actuator is used, however, electrostatic, electromagnetic, thermal and magnetic actuators are all very well known in the art, and would be an obvious choice to one skilled in the art to use in order to control the microstructures to move to their respective positions.

In regards to claim 32, Athale discloses an optical cross connect (fig. 19) for switching optical signals between a first plurality of optical ports (not shown, but represented by beams

1910, 1920, 1930) and a second plurality of optical ports (represented by 1940, 1950, 1960, 1970, 1980), the optical cross connect comprising a first substrate (1990) having a surface facing the first plurality of optical ports, a second substrate (1992) having a surface facing the second plurality of optical ports, a first off axis reflective microstructure array (1911-1915, 1921-1925, 1931-1935) formed on the surface of the first substrate, wherein the first off axis reflective microstructure array includes a plurality of reflective microstructures (1911-1915, 1921-1925, 1931-1935), each reflective microstructure of the first off axis reflective microstructure array being associated with one of the first plurality of optical ports and including an optically reflective surface, and a second off axis reflective microstructure array (1941-1943, 1951-1953, 1961-1963, 1971-1973, 1981-1983) formed on the surface of the second substrate, wherein the second off axis reflective microstructure array includes a plurality of reflective microstructures (1941-1943, 1951-1953, 1961-1963, 1971-1973, 1981-1983), each reflective microstructure of the second off axis reflective microstructure array being associated with one of the second plurality of optical ports and including an optically reflective surface, each reflective microstructure of the first off axis reflective microstructure array (for example 1911) being positionable to orient its reflective surface to reflect an optical signal (1918) receivable from its associated optical port (1910) to the reflective surface of at least one reflective microstructure of the second off axis reflective microstructure array (1941), and each reflective microstructure of the second off axis reflective microstructure array is positionable to orient its reflective surface to reflect an optical signal receivable from at least one reflective microstructure of the first off axis reflective microstructure array to its associated optical port (1940). While it is not explicitly disclosed, the set up of the system provides for having the first array positionable to orient its reflective surface to reflect an optical signal receivable from at least one reflective microstructure of the second off axis reflective microstructure array (1941) to its associated optical port, and each reflective microstructure of the second off axis reflective microstructure array (for example

1941) being positionable to orient its reflective surface to reflect an optical signal (1918 reversed) receivable from its associated optical port to the reflective surface of at least one reflective microstructure of the first off axis reflective microstructure array (1911), and this would be obvious to one of ordinary skill in the art in order to have a transfer of a signal from each port available in each direction.

Allowable Subject Matter

Claims 12-13, 19, 21, 33-39, 51-52, 58, and 63-64 are objected to as being dependent upon a rejected base claim, but would be allowable over the prior art of record if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

As to claim 12, the prior art of record, taken alone or in combination, fails to disclose or render obvious a system for redirecting optical signals comprising a fixed reflective surface that is fixed in a position relative to the reflective array to provide an optical pathway between the target location and the reflective array, in combination with the rest of the limitations of claim 12.

As to claim 13, the prior art of record, taken alone or in combination, fails to disclose or render obvious a system for redirecting optical signals comprising a fixed reflective surface that is fixed in a position relative to the two reflective arrays to provide an optical pathway between two arrays, in combination with the rest of the limitations of claim 13.

As to claim 19, the prior art of record, taken alone or in combination, fails to disclose or render obvious a system for redirecting optical signals wherein an effective packing density of the reflective array exceeds a real packing density of the reflective array, in combination with the rest of the limitations of claim 19.

As to claim 21, the prior art of record, taken alone or in combination, fails to disclose or render obvious a system for redirecting optical signals wherein each reflective microstructure is

positionable with two degrees of freedom, in combination with the rest of the limitations of claim 21.

As to claim 33, the prior art of record, taken alone or in combination, fails to disclose or render obvious an optical cross connect for switching optical signals between a first plurality of optical ports and a second plurality of optical ports wherein first and second pluralities of optical ports are positioned on a first side of a free space switch interface, and the first and second substrates are positioned on a second side of the free space switch interface opposite the first side, in combination with the rest of the limitations of claim 33.

As to claim 51, the prior art of record, taken alone or in combination, fails to disclose or render obvious a method for redirecting optical signals from originating locations to target locations wherein at least one specified target location comprises a fixed reflective surface fixed relative to the reflective microstructure array, in combination with the rest of the limitations of claim 51.

As to claim 52, the prior art of record, taken alone or in combination, fails to disclose or render obvious a method for redirecting optical signals from originating locations to target locations wherein at least one specified originating location comprises a fixed reflective surface fixed relative to the reflective microstructure array, in combination with the rest of the limitations of claim 52.

As to claim 58, the prior art of record, taken alone or in combination, fails to disclose or render obvious an optical system wherein the axis normal to the substrate on which the array of the first reflective devices is formed is parallel with optical beams transmitted from the plurality of first optical ports, in combination with the rest of the limitations of claim 58.

As to claim 63, the prior art of record, taken alone or in combination, fails to disclose or render obvious an optical system comprises a fixed reflective surface fixed relative to the array of first reflective devices and the array of second reflective devices, the fixed surface being

positioned to provide an optical pathway between the array of the first devices and the array of the second devices in combination with the rest of the limitations of claim 63.

As to claim 64, the prior art of record, taken alone or in combination, fails to disclose or render obvious an optical system wherein the axis normal to the substrate on which the array of the second reflective devices is formed is parallel with optical beams transmitted from the plurality of second optical ports, in combination with the rest of the limitations of claim 64.

Additional Prior Art

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior art made of record is Miller et al. (USPN 6,640,023), Park (USPN 6,728,017), Yong (US Pub 2002/0146197), and Staple et al. (US Pub 2003/0012488).

Miller discloses a system for redirecting optical signals comprising a plurality of optical ports, two reflective microstructure arrays, each formed on a substrate, a fixed mirror to provide an optical pathway between the two reflective arrays, wherein an average normal vector associated with each of the reflective arrays forms an acute angle with a vector normal to the surface of the substrate, and wherein there are two pluralities of optical ports which are positioned on a first side of a free space switch interface while the substrate is positioned on a second side opposite to the first side.

Park discloses a reflective microstructure formed on a substrate, wherein an average normal vector associated with the reflective microstructure forms an acute angle with a vector normal to the surface of the substrate.

Yong discloses a system for redirecting optical signals comprising a plurality of optical ports, two reflective microstructure arrays, each formed on a substrate, a fixed mirror to provide an optical pathway between the two reflective arrays, wherein an average normal vector associated with each of the reflective arrays forms an acute angle with a vector normal to the surface of the substrate, and wherein there are two pluralities of optical ports which are positioned

on a first side of a free space switch interface while the substrates are positioned on a second side opposite to the first side.

Staple discloses a system for redirecting optical signals comprising a plurality of optical ports, two reflective microstructure arrays, each formed on a substrate, wherein an average normal vector associated with each of the reflective arrays forms an acute angle with a vector normal to the surface of the substrate, and wherein there are two pluralities of optical ports which are positioned on a first side of a free space switch interface while the substrate is positioned on a second side opposite to the first side.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kara E Geisel whose telephone number is **571 272 2416**. The examiner can normally be reached on Monday through Friday, 8am to 4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank Font can be reached on **571 272 2415**. The fax phone numbers for the organization where this application or proceeding is assigned are 703 872 9306 for regular communications and 703 872 9306 for After Final communications.

Greg Toatley
SPE
Art Unit 2877

K.G
KEG
July 12, 2004